

12. SSC (December 7-9, 2021) M

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SSC Report to NEFMC

SSC Chair, Lisa Kerr

Webinar

Dec. 8, 2021





Topics

- Scallop OFLs & ABCs FY 2022-2023
- Groundfish OFLs & ABCs FY 2022-2024 (GOM and GB cod),
FY 2022 (GOM and GB haddock, white hake)



Scallops





Scallop ToRs

The SSC met on October 13, 2021 via webinar to address the following terms of reference (TORs):

1. Review information provided by the Scallop PDT on changes to scallop meat weights and dredge efficiency used to develop 2021 survey estimates, and growth and selectivity parameters used in the Scallop Area Management Simulation (SAMS) model to project biomass. Provide the Council with a recommendation as to whether these changes are appropriate.
2. Consider if the biomass estimates developed by PDT for areas of the Gulf of Maine that have been surveyed but are outside of the NGOM and the current Georges Bank scallop survey strata are appropriate to include in the biomass estimates for the resource as a whole in developing 2022 and 2023 OFL and ABC estimates.
3. Using reference points updated by the 2020 management track assessment, and considering the Council's Risk Policy Statement, review the Scallop PDTs updated projections for the scallop resource, including estimates from the Gulf of Maine and Northern Gulf of Maine management unit, and provide the Council with OFL and ABC recommendations using the Council's ABC control rule for fishing years 2022 and 2023 (default).



Scallop ToR 1

- The SSC accepted the PDT changes to:
 - (1) sea scallop shell height to meat weight relationships,
 - (2) dredge efficiency used to develop 2021 survey estimates, and
 - (3) growth and selectivity parameters used in the Scallop Area Management Simulation (SAMS) model to project biomass.
- SSC views these changes as appropriate and representative of the best scientific information available.



Scallop ToR 1

Rational

- SSC agreed with PDT's use of area-specific shell-height to meat weight relationships as a means of accounting for slower growth of scallops in Nantucket Lightship region.
- SSC agreed with PDT's adjustment for decreased survey dredge efficiency in high density areas as determined by optical survey observations.
- SSC agreed with continued use of different growth assumptions in the SAMS model to match slower growth of scallops in Georges Bank & Mid-Atlantic regions.
- SSC agreed with continued application of Georges Bank Open Area selectivity curve in the Nantucket South area which reflects targeting of smaller scallops compared to Georges Bank Closed Area selectivity curve.



Scallop ToR 1

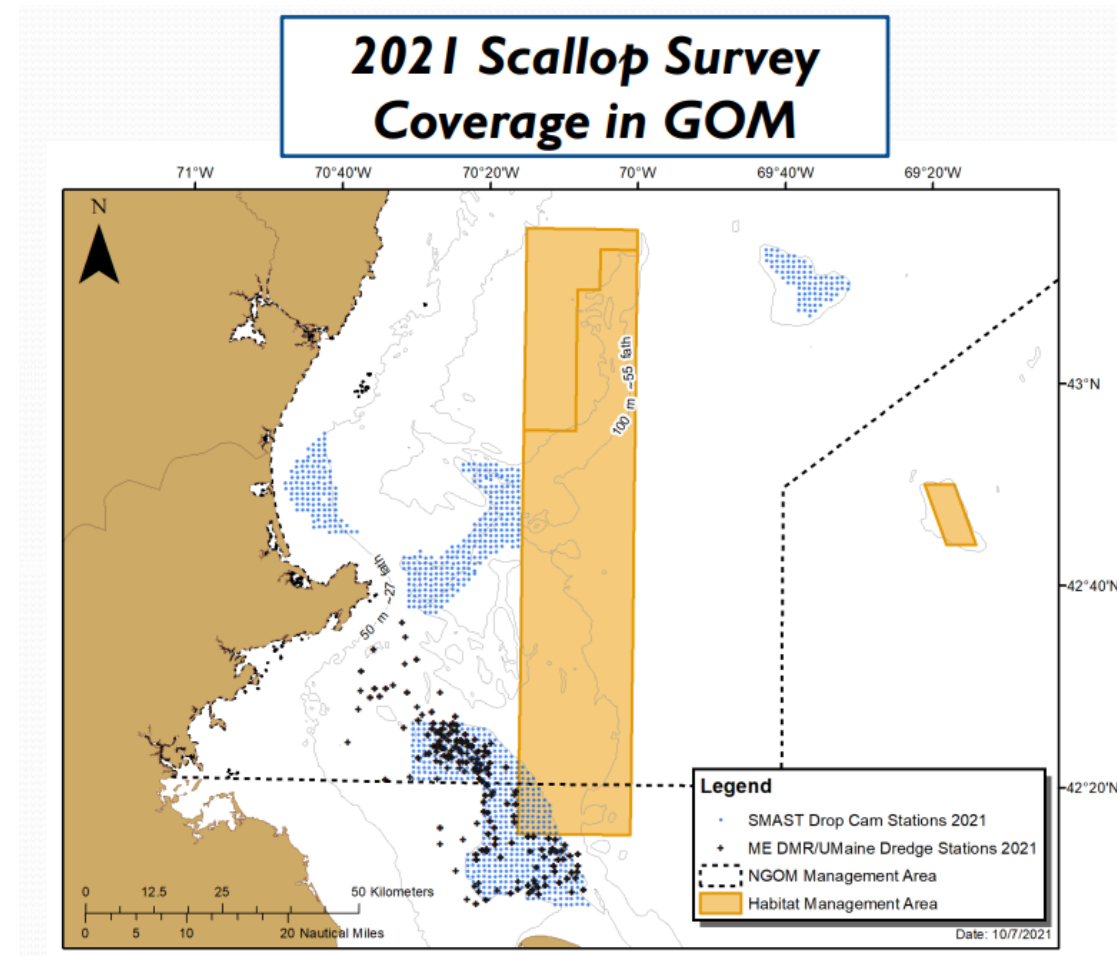
Research Recommendations

- SSC expressed concern about the continued need to make adjustments to the assumptions of the SAMS model to account for recent changes in stock dynamics.
- Recommended that research be undertaken to address these changes in a more systematic and holistic manner.



Scallop ToR 2

- SSC recommended inclusion of biomass estimates for Gulf of Maine areas that have been surveyed in estimating overall biomass of the scallop resource in development of 2022 and 2023 OFLs and ABCs.





Scallop ToR 2

Rational

- Amendment 21 modified how scallops from NGOM management unit are accounted for—now included in development of OFL and ABC for scallops.
- No precedent to include the GOM area in OFL and ABC calculation, but no biological reason to exclude this region and survey data are currently available to apply the same approach for the GOM as NGOM.
- No reference points are available for this region, so Georges Bank F_{MSY} was used for this calculation (same approach as used for NGOM).
- Implications of including the GOM biomass in developing OFL and ABC estimates.
 - Increase in 2022 and 2023 OFL and ABC values by ~ 3%.
 - Increase in allocation to the fishery ~ 1% as majority of additional biomass is in the WGOM closed area.



Scallop ToR 2

Research Recommendations

- SSC was concerned whether surveys of the GOM area would continue so that GOM scallop biomass could continue to be included in total scallop biomass calculations.
- PDT noted there is a strong commitment to continue surveying this area in the future.
- SSC recommends consideration of the future of surveys in the GOM region in the ongoing Scallop Survey Working Group and NEFSC-supported scallop survey re-stratification efforts.



Scallop Catch Advice

The SSC accepts use of the SAMS model for stock projections and developing catch advice. The SSC considered the calculations provided by the PDT and recommends the following OFLs and ABCs:

Fishing Year	Areas Included	OFL (mt)	ABC (mt)
2022	GB, MA, NGOM+GOM	38,271	30,305
2023	GB, MA, NGOM+GOM	34,941	27,606



Scallop Catch Advice

Rational

- SSC accepts use of the SAMS model for stock projections and developing catch advice.
- Concerned about the performance of the SAMS model and tendency for overly optimistic estimates due to issues with model assumptions (i.e., growth, recruitment, and natural mortality).
- SSC supported the inclusion of the GOM region in developing overall OFLs and ABCs.
- 2022 and 2023 biomass projections indicate a continued decline from the record-high levels observed in recent years:
 1. Continued harvest of the exceptional 2012 and 2013 year classes,
 2. Absence of strong recruitment in subsequent years, and
 3. Reduced sea scallop growth rates.



Scallop Catch Advice

Research Recommendations

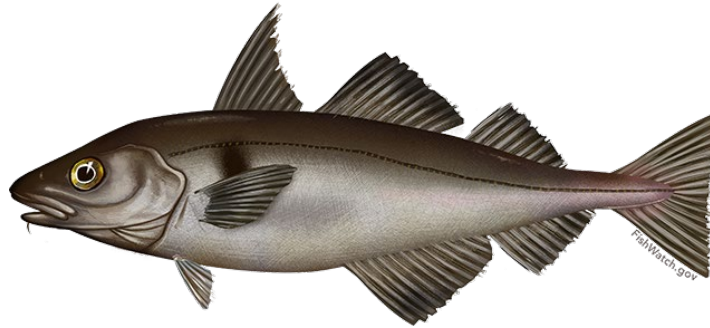
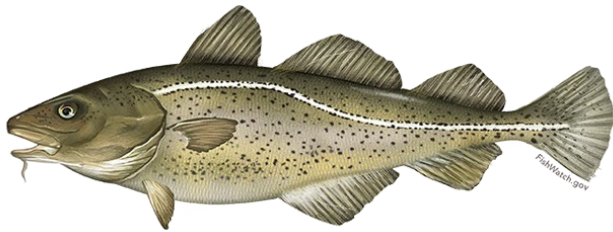
- Ongoing research on potential drivers of changes in sea scallop stock dynamics (e.g., changing ocean conditions, including ocean acidification and warming) be included in the upcoming review of the SAMS model and in the 2024 research track assessment for scallops.



Questions ?



Groundfish





Groundfish ToRs

The SSC met on October 25, 2021 via webinar to address the following terms of reference (TORs):

Considering the Council's Risk Policy Statement, provide an OFL and an ABC recommendation that will prevent overfishing and meet the management objective to rebuild the stock(s), and that are consistent with the Council's ABC control rule for groundfish stocks for:

- Fishing years 2022 to 2024 for Georges Bank (GB) cod and Gulf of Maine (GOM) cod, and fishing year 2022 for white hake, and
- Consider adjusting the OFL and ABC recommendations for fishing year 2022 for GB haddock and GOM haddock.



Gulf of Maine Cod Catch Advice

- Gulf of Maine cod is considered to be overfished with the overfishing status differing between models (M=0.2: overfishing, M-ramp: not overfishing).
- SSC accepts the ASAP model results and chooses to apply Option A under the ABC control rule to derive ABCs.
- SSC recommends calculating ABC using only one bridge year and holding this value constant for 3 years with the aim of reducing the likelihood of overfishing and promoting stock rebuilding.
- The SSC recommends the following OFLs and ABCs:

Fishing Year	OFL (mt)	ABC (mt)
2022	724	551
2023	853	551
2024	980	551



Gulf of Maine Cod Catch Advice

Rational Including Significant Sources of Uncertainty

- SSC deliberated whether to use Option A or C (restricting catch to incidental bycatch only) under the ABC control rule and decided to apply Option A.
- Option B was not considered as F_{rebuild} value $> 75\%F_{\text{MSY}}$.
- PDT provided recent discard information, but values do not represent all incidental bycatch under the prevailing operation of the fishery --this number is difficult to quantify and conditional on multiple factors
- The SSC concluded that the available bycatch data were insufficient to inform setting an ABC.



Gulf of Maine Cod Catch Advice

Rational Including Significant Sources of Uncertainty

- SSC was concerned that catch projections using 2 bridge years could be overly optimistic.
- SSC chose to average the projections from the rho-adjusted $M = 0.2$ model and the M-ramp ($M = 0.4$) model with 1 bridge year (CY 2020) to generate the ABC recommendation.
- SSC recommends a constant ABC for 2022-2024, with the constant catch level being the average of the two 2022 ABC values (lowest value of 3 yr projection).
- OFL was based on the projections of fishing at F_{MSY} , averaged for the two models.



Gulf of Maine Cod Catch Advice

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

- SSC is concerned about the impact of retrospective patterns on GOM cod catch advice and recommends consideration of whether both $M = 0.2$ and M-ramp models remain useful.
- SSC recommends research on the appropriate recruitment stanza to inform projections.
- SSC recommends examinations of the impact of changing ocean conditions on aspects of stock productivity and on the projections.
- SSC recommends findings of the Atlantic Cod Stock Structure Working Group be integrated into the stock assessment process.
- SSC requests the PDT explore development of more robust estimate of incidental bycatch to support application of Option C of the ABC control rule.



Georges Bank Cod Catch Advice

- A **majority** of the SSC accepts the continued use of the PlanBsmooth approach for setting the ABC for GB cod.
- The SSC based its advice on the PlanBsmooth application with imputed data values for missing 2020 surveys.
- The OFL remains unknown, therefore the SSC cannot explicitly determine whether the proposed ABC will end overfishing. We anticipate the large reduction in the ABC for GB cod from the previous three years (~57%) will increase the probability of stock rebuilding.
- The SSC recommends the following ABCs:

Fishing Year	OFL (mt)	ABC (mt)
2022	unknown	754
2023	unknown	754
2024	unknown	754



Georges Bank Cod Catch Advice

Rational Including Significant Sources of Uncertainty

- PlanBsmooth approach has been used to set the ABC for GB cod since the 2015 age-based update assessment was rejected.
- The approach was approved by the Management Track Assessment peer review panel.
- PlanBsmooth approach was extensively tested and performed well in the simulation work of the Index-Based Methods Working Group.



Georges Bank Cod Catch Advice

Rational Including Significant Sources of Uncertainty

- One of the important uncertainties associated with the Plan B approach is the impact that the missing 2020 spring and fall survey values would have on the results.
- Two applications of the Plan B approach were presented to the SSC.
 1. Plan B was applied with missing values for the 2020 spring and fall survey, which resulted in a catch multiplier of 0.611 and an ABC of 729 mt.
 2. Values for 2020 were imputed resulting in a catch multiplier of 0.632 and an ABC of 754 mt.
- The majority of the SSC endorsed the application of the PlanBsmooth approach for setting catch advice and ultimately adopted the approach that filled in the missing 2020 survey values.



Georges Bank Cod Catch Advice

Additional Comments and Research Recommendations

- The recommended ABC represents an ~57% decrease from ABC value in the previous 3 years and the SSC expressed concern about the economic impact this reduction would have on the fishery.
- SSC had extensive discussion of how the Council's Risk Policy might be used to inform a more gradual decrease in ABC. However, the economic analysis and information presented by the PDT did not evaluate the quantitative impacts of possible levels of ABC.
- In the case of large, anticipated decreases in ABC, the SSC recommends that additional socioeconomic information be presented in the future to better understand how such decreases in the ABC may impact the groundfish fishery.
- SSC was concerned about potential for the PlanBsmooth approach to be chasing noise in the survey index, particularly for a stock at low abundance.



Georges Bank Cod Minority Report

- SSC did not find consensus on recommendations for FY2022-2024 ABC for Georges Bank cod. There was a minority view from three SSC members regarding the application of the 2021 Georges Bank Cod Management Track Assessment results as the sole basis for recommending ABC advice.
- These members of the SSC noted that the analysis presented by the PDT did not evaluate the economic impacts of the proposed ABCs for the SSC to consider in their deliberations of advice for FY2022-2024.
- The minority view did not dispute the Georges Bank Cod Management Track Assessment results as representing Best Scientific Information Available as determined by the assessment Peer Review Panel, but noted that additional factors, such as social and economic objectives as outlined in the New England Fishery Management Council's Risk Policy Road Map, should be considered to set ABC advice for this stock.



Georges Bank Cod Minority Report

- The minority view expressed concern over evidence presented by fishing industry representatives that a ~60% reduction in ABC for FY2022-2024 could result in a “fishery crisis”, and the minority view noted that the Council’s Risk Policy guidelines suggest that this is a case where (highly uncertain) assessment outcomes alone should not decide the ABC.
- The minority view is that the stock rebuilding benefits of lowering the ABC may not justify the potential damage to local economies in this case.
- Due to unknown overfishing status, the SSC could not make explicit determinations about potential rebuilding benefits associated with proposed ABC.



Georges Bank Cod Minority Report

- The minority view supported an alternative application of ABC control rule option d) *“Interim ABCs should be determined for stocks with unknown status according to case-by-case recommendations from the SSC.”*
- The alternative approach included a ramped decrease in ABC between 2022 to 2024 to account for the potential socioeconomic impacts associated with a ~60% reduction in ABC in a single year.
- The Georges Bank cod ABC values supported by the minority were: **FY2022:** 1,053 mt, **FY2023:** 904 mt, and **FY2024:** 754 mt with the OFL considered unknown.
- Rationale for this approach included:
 - i) increased uncertainty in the PlanBsmooth method where 2020 survey data were missing,
 - ii) undetermined overfishing status and lack of information about rebuilding potential,
 - iii) potential economic impacts of ~60% reduction in ABC advice from FY2021 to FY2022-2024, and
 - iv) guidance from the Risk Policy Road Map.



Georges Bank Haddock Catch Advice

- GB haddock is considered rebuilt, it is not overfished, and overfishing is not occurring.
- The SSC was provided with updated survey and economic information to review and consider whether adjustments to the FY 2022 OFL and ABC were needed.
- The SSC supports the PDT recommendation to maintain the current FY 2022 OFLs and ABCs for GB haddock:

Fishing Year	OFL (mt)	ABC (mt)
2022	114,925	88,856

Note: the 2022 ABC value in this table reflects a correction in the Memo from the Groundfish PDT to SSC made after the meeting



Georges Bank Haddock Rational

Rational Including Significant Sources of Uncertainty

- Updated survey estimates for GB haddock track the projections made in the 2019 stock assessment and reflect a continued decline in survey indices.
- Length frequencies from the surveys track decline in abundance of the strong year-classes of the early 2010s with no indication of incoming strong year-classes.
- Stock utilization for GB haddock is low.
- Based on the review of updated survey and economic information, the SSC did not see a need for adjustments to the existing fishing year 2022 OFL and ABC.



Georges Bank Haddock Rational

Additional Comments and Research Recommendations

- The Haddock Research Track Assessment is ongoing, it will be reviewed in 2022 and a Management Track Assessment is scheduled for the autumn of 2022.



Gulf of Maine Haddock Catch Advice

- Gulf of Maine haddock is considered rebuilt, it is not overfished, and overfishing is not occurring.
- The SSC was provided with updated survey and economic information to review and consider whether adjustments to the FY 2022 OFL and ABC were needed.
- The SSC supports the PDT recommendation to maintain the current FY 2022 OFL and ABC for GOM haddock

Fishing Year	OFL (mt)	ABC (mt)
2022	14,834	11,526



Gulf of Maine Haddock Catch Advice

Rational Including Significant Sources of Uncertainty

- Updated survey estimates for GOM haddock track the projections made in the 2019 stock assessment and reflect a continued decline in the survey indices.
- Length frequencies from the surveys also track declines in the previous strong year-classes, with no indication of incoming strong year-classes.
- Stock utilization for GOM haddock is low to moderate in recent years.
- Based on the review of updated survey and economic information, the SSC did not see a need for adjustments to the existing FY 2022 OFL and ABC.



Gulf of Maine Haddock Catch Advice

Additional Comments and Research Recommendations

- The Haddock Research Track Assessment is ongoing; it will be reviewed in 2022 and a Management Track Assessment is scheduled for the autumn of 2022.



White Hake Catch Advice

- 2019 white hake stock assessment: overfished, but overfishing was not occurring.
- A new rebuilding plan was implemented that defines $F_{\text{rebuild}} = 70\%F_{\text{MSY}}$.
- The SSC supports the PDT recommendation to revise the previous catch advice for white hake in FY 2022 based on $70\%F_{\text{MSY}}$.
- The SSC recommends the following ABC:

Fishing Year	OFL (mt)	ABC (mt)
2022	3,022	2,155



White Hake Catch Advice

Rational Including Significant Sources of Uncertainty

- Modifying the previous catch advice based on projections at $75\%F_{MSY}$ to projections based on $F_{rebuild}$ ($70\%F_{MSY}$) is appropriate given the establishment of a new rebuilding plan for white hake in 2021.
- Sources of uncertainty include a significant retrospective pattern in the white hake assessment that appears to be worsening.
- The SSC notes that stock utilization is high in recent years.



White Hake Catch Advice

Additional Comments and Research Recommendations

- Delays due to restrictions from the COVID-19 pandemic led to rescheduling the management track stock assessment from 2021 to 2022 for this stock.



Questions?

